METHODS TO FORM A MEMORY CELL WITH METAL-RICH METAL CHALCOGENIDE

Abstract of the Disclosure

The invention relates to the fabrication of a resistance variable material cell or programmable metallization cell. The processes described herein can form a metal-rich metal chalcogenide, such as, for example, silver-rich silver selenide. Advantageously, the processes can form the metal-rich metal chalcogenide without the use of photodoping techniques and without direct deposition of the metal. For example, the process can remove selenium from silver selenide. One embodiment of the process implants oxygen to silver selenide to form selenium oxide. The selenium oxide is then removed by annealing, which results in silver-rich silver selenide. Advantageously, the processes can dope silver into a variety of materials, including non-transparent materials, with relatively high uniformity and with relatively precise control.

MSO-2724.DOC
082902